

**HIGH PEAK CURRENT DENSITY
RESONANT TUNNELING DIODE**

ABSTRACT OF THE DISCLOSURE

5 A resonant tunneling diode is produced in a
gallium arsenide material system formed with barrier layers
of AlGaAs with a quantum well layer of low band-gap
material between them. The material of the well is
selected to adjust the second energy level to the edge of
the conduction band in GaAs, with a preferred quantum well
10 layer formed of InGaAs. The resonant tunneling diode
structure is grown by a metal organic chemical vapor
deposition process on the surface of the nominally exact
(100) GaAs substrate. Layers of doped GaAs may be formed
on either side of the multilayer resonant tunneling diode
15 structure, and spacer layers of GaAs may also be provided
on either side of the barrier layers to reduce the
intrinsic capacitance of the structure.